PCRM PHYSICIANS COMMITTEE FOR RESPONSIBLE MEDICINE
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Livestock and Seed Programs
Agricultural Marketing Service
U.S. Department of Agriculture
Stop 0249, Room 2092-S
Washington, DC 20250-0249
Fax: (202) 720-3499
Total Pages: 2

Re: Public Comment on 2002 Farm Bill Food Safety Technologies Provision

Dear Sir or Madam:

On behalf of the Physicians Committee for Responsible Medicine (PCRM), I am submitting comments on the 2002 Farm Bill requiring the United States Department of Agriculture's use of approved food safety technologies for commodity purchase programs. Despite the praise and approval for food irradiation from the World Health Organization and the U.S. Food and Drug Administration, there is not clear evidence to prove the safety of the consumption of irradiated foods for humans.

Foodborne illness outbreaks are on the rise in the United States, particularly those related to *salmonella* species, *Escherichia coli* O157:H7, *campylobacter, Staphylcoccus aureus,* and *Listeria monocytogenes*. According to the Centers for Disease Control and Prevention (CDC), foods of animal origin are the most likely to be contaminated with pathogenic bacteria. Fruits and vegetables that come in contact with manure and water downstream from animal farms may also contain pathogens. In an effort to kill these pathogens and prevent foodborne illnesses while at the same time increasing shelf life of fresh perishables, some foods are now being treated with ionizing radiation. However, the strong ionizing radiation (millions of times the dose of radiation used in a chest x-ray) used to irradiate foods changes the chemical composition of its target foods, and what are termed "radiolytic products" are formed in the process. Some of these created compounds are carcinogenic, and others are likely to cause genetic damage. For example, a report published in the *American Journal of Clinical Nutrition* studied 15 children suffering from protein-calorie malnutrition who developed polyploid cells (cells containing multiple copies of their chromosomes) and other abnormal cells after being fed irradiated wheat.

As with any thermal treatment, loss of nutrients in foods from animal and plant sources occurs with irradiation, and nutrient loss increases with radiation dose. According to the World Health Organization, thiamin (vitamin B1), vitamin C, and the tocopherols

(vitamin E) are extremely radiation-sensitive. Much of the change in nutrient composition as a result of irradiation is unexplainable—loss of certain nutrients is different for different foods. Amino acid composition has also been shown to change as a result of gamma irradiation. For example, irradiation of ground grains at doses above 5 kGy resulted in significant lysine losses in corn, wheat, and soybeans, methionine losses in wheat and corn, and decreased histidine levels in wheat.

In addition to nutrient losses, irradiated foods may also change in taste, color, and texture after irradiation. For example, vitamin C-rich foods such as fresh fruits, juices, vegetables, and potatoes are unsuitable for high-dose irradiation because not only is vitamin C a radiation-sensitive nutrient, but also irradiation causes an undesirable change to the sensory qualities of these foods. Among many of the color changes that occur with irradiation, broccoli loses it's bright green color when irradiated to kill *Listeria monocytogenes*. Children are already not getting sufficient daily servings of fruits and vegetables—irradiating these healthy foods may make it even more difficult for kids to enjoy them.

It is the position of the Physicians Committee for Responsible Medicine that there is not sufficient human evidence to support the safety of food irradiation. Treating foods with ionizing radiation reduces their essential micronutrient and amino acid composition, as well as their taste, color, and texture. In order to avoid the health and safety risks of meat, poultry, fish, and other foods from animal sources, PCRM recommends that diets be built from plant foods. In addition, PCRM is pushing for stronger food safety measures to prevent the spread of pathogenic microorganisms, and further research into the safety of irradiated foods for humans.

Please feel free to contact me if you have questions.

Sincerely,

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